

New NMFS Scientific Reports Published

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NOAA Technical Report NMFS Circular 442. Sindermann, Carl J. (editor).

"Proceedings of the Sixth U.S.-Japan Meeting on Aquaculture, Santa Barbara, California, August 27-28, 1977." March 1982, iii + 66 p. (5 papers.)

NOAA Technical Report NMFS Circular 443. Palko, Barbara Jayne, Grant L. Beardsley, and William J. Richards. **"Synopsis of the biological data on dolphinfishes, *Coryphaena hippurus* Linnaeus and *Coryphaena equiselis* Linnaeus."** April 1982 iv + 28 p., 15 figs., 10 tables.

(No abstract.)

NOAA Technical Report NMFS SSRF-752. Lux, F. E., and F. E. Nichy. **"Movements of tagged summer flounder, *Paralichthys dentatus*, off southern New England."** December 1981. 16 p.

ABSTRACT

A total of 2,839 summer flounder were tagged on outer continental shelf and coastal grounds off southern New England in 1961-62. Tag recaptures showed the migration to offshore grounds in fall and winter and to inshore areas in spring and summer. Recaptures from coastal grounds were recorded from northern New Jersey to south of Cape Cod; those from outer shelf grounds were from Baltimore Canyon on the southwest to Veatch Canyon on the northeast. The overall tag return rate was 21.2 percent; however, the returns from inshore tagging (44.5 percent) were much higher than those from offshore releases (8.4 percent), suggesting that tagging mortality was higher offshore.

NOAA Technical Report NMFS SSRF-753. Low, R. A., Jr., and S. B. Mathews. **"Factors influencing ocean catches of salmon, *Oncorhynchus* spp.,**

Progress in Fisheries Technology, Utilization

"Nahrung aus dem Meer," subtitled in English "Food from the Sea," and published by Springer-Verlag, Berlin, West Germany, is a collection of interesting and useful papers from an international symposium of the same title held in Bremerhaven in October 1980. Editor is Horst Noelle.

Nine of the nineteen papers are in English; the rest are in German. In the English-language papers, Z. S. Karnicki of FAO reviews the effects of EEZ's on world fish production, R. Young of Scotland reviews their experiences in net-pen rearing of Atlantic salmon, and mussel protein values, their variation, and studies on a mussel protein concentrate are reported by G. Varela of Spain.

H. Kunachowicz of Poland details the nutritive values of krill and its possible role in human nutrition. Problems in animal feeding studies with krill products are related and further research is rec-

ommended before introducing krill into the human diet.

Constituents of commercial and industrially important algae are discussed by W. Becker of Germany. Likewise, the use of seaweeds in human food and medicine in Japan is reviewed by S. Matsuzaki and K. Iwamura. H. M. Sinclair reviews the possible importance of a fish diet in preventing several chronic degenerative diseases, stressing that much further research is needed. Contaminants (i.e., mercury, PCB's, etc.) in fish and their monitoring in the United Kingdom are briefly described by A. W. Hubbard. J. J. Connell et al. examine potentially hazardous substances (PNAH, CP, CDD) in smoked fish products.

Papers in German review the limits of marine food production; fisheries and nutrition investigations; location, catching, and processing of krill; rat-krill feeding studies with particular reference to fluoride; underutilized species; fish in the human diet; fish nutrition, cardio-

vascular illness, and serum cholesterol; handling biological wastes, and toxic substances (PCB's, pesticides, heavy metals, etc.) in marine species.

The 260-page small-format (6½×9½") paperbound volume is available from the publisher at DM78 (about \$37.20, subject to change).

Publication of **"Trends in Fish Utilization"** by J. J. Connell and R. Hardy, a Buckland Foundation book, has been announced by Fishing News Books Ltd., 1 Long Garden Walk, Farnham, Surrey, England. Much of the world's marine protein is not fully utilized and the authors, director and assistant director, respectively, of the Torry Research Station, drawing on their own research, discuss how these raw materials might be exploited more effectively by the United Kingdom.

Following a brief introduction, the authors review in chapter 2 a number of fishery resources either unused or un-

off Washington and Vancouver Island." January 1982. 12 p.

ABSTRACT

The relative influence of various factors on ocean fishing success was evaluated for pink, *Oncorhynchus gorbuscha*, chinook, *O. tshawytscha*, and coho, *O. kisutch*, salmon off Washington and Vancouver Island. In addition, an evaluation was made of the practicality of predictive models for ocean catch. For each species, predictive regression equations were developed and their reliability evaluated in terms of the average percentage error of predicted catches from actual catches.

Pink salmon catches were significantly correlated with indices of brood year abundance and the average individual weight of fish caught in terminal areas during the brood year. Average error of predicted catches ranged upward of ± 25 percent. Success for chinook salmon in year i was highly associated with Columbia River hatchery releases of fall brood year groups $i - 3$ and $i - 4$, Canadian purse seine catches of immature chinook salmon in Canadian area 20 during August of year $i - 1$, and troll catch per effort during the fall of year $i - 1$. Washington troll and

sport catches of chinook salmon were also significantly correlated with the amount of nominal fishing effort. Coho salmon catches were significantly associated with level of fishing effort, indices of brood year abundance of Columbia River wild coho salmon, and Columbia River jack returns the preceding year. The average error of predicted annual troll coho salmon catches off the central Washington coast was ± 15 percent for 1966-75.

NOAA Technical Report NMFS SSRF-754. Smith, Gary B., and Richard G. Bakkala. "Demersal fish resources of the eastern Bering Sea: Spring 1976." March 1982, vii + 129 p.

ABSTRACT

During the spring of 1976, 683 otter trawl samples were collected within an area of 337,930 km² in the second of two baseline surveys designed to describe characteristics of Bering Sea demersal fish and shellfish populations.

Climatic conditions during the spring 1976 survey were anomalously cold, affecting both the pattern of trawl sampling and the apparent distributions of fish pop-

ulations. During April and May, winter pack ice still covered 50-75 percent of the study area. Most demersal fish populations were distributed in deep water along the outer continental shelf where bottom water temperatures were warmest. At least two species populations showed extensive migrations.

A total of 78 fish species distributed among 22 families was recorded during the 1976 survey. The overall apparent mean density of demersal fish was 12.3 t/km² of which pleuronectids accounted for 67.8 percent, gadids 18.8 percent, and cottids 8.7 percent. Specific regions of highest fish densities were the outer continental shelf between St. George and Unimak Islands, directly west of St. Paul Island, and the central shelf area between Cape Newenham and Port Moller.

Comparisons between results of the first (August-October 1975) and second (April-June 1976) surveys were interpreted as representing seasonal extremes. During the survey of August-October 1975, apparently large-scale migratory movements had ended and the demersal fish populations were in late summer distributional patterns. Geographical ranges were generally broad and many species extended into Bristol Bay. During the survey of April-June 1976, demersal fish populations were apparently

derused in the United Kingdom: Imported white fish (South African hakes, Alaska pollock, and Pacific cod), Atlantic mackerel, sprat, pilchards, crabs, blue whiting, scad, deepwater species (blue ling, grenadiers, black scabbard, and small sharks), dabs, mussels, squid, other shellfish (cockles, periwinkles, and whelks), Norway pout, sandeels, Argentinines and silvery pout, Antarctic species (krill and various fishes), and recovered fish flesh.

Development of conventional fish products is reviewed in chapter 3—canning is believed to hold the most promise for U.K. expansion. Chapter 4 presents more recent developments and products: Laminated small-fillet blocks, kamaboko, moulded fillets, deboned flesh, fish protein concentrate, fish flour, etc. A final chapter discusses the problems in marketing fish and fishery products (pricing, marketing patterns, consumer attitudes, etc.). The authors also present estimates for potential U.K. increases in fishery utilization, providing the proper

technologies and conditions are met. The 106-page paper bound, small-format (5½×8½") book costs £6 plus 60 p postage and is available from the publisher.

"Proceedings of the Sixth Annual Tropical and Subtropical Fisheries Technological Conference of the Americas," compiled by Ranzell Nickelson II, again presents a wide range of reports for the fishery technologist. Papers, edited by their respective authors, range from reviews of Guatemala's fisheries and factors influencing Asian shrimp quality to a Philippine fish market, the status of seafood technology in Venezuela, aquaculture in Mexico, shrimp mariculture, waste management rules in southern seafood industries, Louisiana's crawfish industry, and an evaluation of alligator meat.

Many of the papers contributed at the conference on 20-23 April 1981 dealt with shrimp: Marketability in South Carolina restaurants; effect of water,

bisulfite, and hypochlorite rinses on microbial flora; rapid determination of decomposition; indole formation; differentiation of frozen-thawed and fresh shrimp; purification of phenoloxidase from Gulf shrimp; quality changes during iced storage of whole freshwater prawns; and more.

Other papers discuss seafood quality improvement, processing variables affecting color development in smoked mullet, optimization of drying conditions for stockfish produced from underutilized fish, quantitation of histamine in tuna using an enzyme affinity assay, development of an enzyme affinity assay for seafood products, Mississippi seafood processing economics, developing U.S. midwest markets for Gulf and south Atlantic seafoods, and more.

Copies of the proceedings, TAMU-SG-82-101, are available from the publisher, Marine Information Service, Sea Grant College Program, Texas A&M University, College Station, TX 77843, for \$10 each.

sampled during a period of transition from late winter to early summer distributions. Compared to August-October 1975, species ranges were restricted more to deep water, although some populations were initiating migrations across the continental shelf.

NOAA Technical Report NMFS SSRF-755. Scarlett, Paul G. "**Annotated bibliography and subject index on the summer flounder, *Paralichthys dentatus*.**" March 1982, iii + 12 p.

ABSTRACT

An annotated bibliography and subject index for 114 references are presented on the identity, distribution, life history, ecology, behavior, exploitation, and population dynamics of the summer flounder, *Paralichthys dentatus*.

NOAA Technical Report NMFS SSRF-756. McHugh, J. L., Marjorie W. Sumner, Paul J. Flagg, Douglas W. Lip-ton, and William J. Behrens. "**Annotated bibliography of the hard clam (*Mercen-aria mercenaria*).**" March 1982, iii + 845 p.

(No abstract.)

The Pacific Halibut and Its Fishery

"**The Pacific Halibut, The Resource and the Fishery**" by F. Heward Bell, published by Alaska Northwest Publishing, Box 4-EEE, Anchorage, AK 99509, provides an excellent review of the biology, history, and economics of the species and the halibut industry. Bell, retired, was director of the International Pacific Halibut Commission.

Chapter 1 reviews the common and scientific names of the halibut and related species. The author believes that there is "little basis" for designating the Atlantic and Pacific halibut as separate species. Indian and commercial halibut fisheries are examined in chapter 2 while the sport fishery is discussed in chapter 15. Other chapters review fishing methods (dory fishing, longlining, netting), preservation methods, international agreements affecting halibut fisheries, the halibut commission and its research, and brief biographies of people involved

in halibut fisheries, research, and management.

Likewise, halibut ports and landings are reviewed, as is the origin of halibut catches, the halibut industry and its economics, incidentally caught halibut, halibut marketing, etc. An "overview" chapter gives brief data on significant events and discoveries in the Pacific halibut fisheries.

The large format (8½×11") volume has 267 pages, is indexed, provides a bibliography, and is well illustrated with over 300 photographs. Historians, fishermen, and biologists with an interest in this species will find the volume useful. It is available from the publisher in either softcover at \$19.95 or hardbound at \$24.95.

The McKernan Lectures: OCS Development and Extended Fishery Zones

The McKernan Lectures were established at the University of Washington, Seattle, in memory of Donald L. McKernan, first Director of the University's Institute for Marine Studies. Third in this series is "**Extended National Fisheries Jurisdiction, Palliative or Panacea?**" by Roy I. Jackson, former Assistant Director General (Fisheries) of the Food and Agriculture Organization, and before that Director, International North Pacific Fisheries Commission.

Jackson briefly reviews the beginnings of extended fisheries jurisdiction and its current status and effect on marine fisheries. Today, he says, nearly all marine fishery resources are under one or more national jurisdictions. He then outlines what extended jurisdiction means to such nations as Mauritania, Oman, and Canada, and to fisheries in the western and northeast Pacific Ocean. A summary reflects the author's views on world fisheries: Why fishery zone extensions happened so quickly, the need for regional international arrangements, and that good management of an exclusive fishing zone may entail more costs than its owner or its users or its resources can support. More than a palliative but less than a panacea, the author sees extended

fisheries jurisdiction as having removed but one unknown from the complex and difficult equation of fisheries development.

The fourth lecture, "**Balancing Unknowns, A Decade of Controversy About Developing the Outer Continental Shelf,**" was presented by H. William Menard, former director of the U.S. Geological Survey and now professor of geology at Scripps Institution of Oceanography, La Jolla, Calif.

Menard reviews industry, scientific, and public interest in the development of OCS resources, the state of scientific information on OCS resources, economic benefits, and environmental costs, and discusses such controversial issues of the 1970's as on-structure drilling, leasing schedules and procedures, etc. He concludes that OCS development "has the potential of helping solve our national energy problem with a smaller risk to the environment than any comparable alternative."

Both lectures, interesting and thought provoking discussions of timely marine topics, are available at \$3.00 each from Washington Sea Grant Communications, 3716 Brooklyn Ave. N.E., Seattle, WA 98105.

A Handbook for Fishermen

The fourth edition of "**The Fisherman's Manual**" has been compiled, edited, and updated by the staff of *World Fishing*. The first 9 chapters are devoted primarily to trawlers, trawling, and related deck activities. Additional chapters deal with seine netting, purse seining, ring netting, fishing with light, set netting, line fishing (pole, troll, jigging, longlining), shellfishing, finding fish, care of the catch, deck machinery, ropes, knots and net mending, and handling the vessel. Well illustrated with drawings and photographs, the volume is a handy reference. The large-format (8¼×11½ inches), 122-page softcover handbook is available from IPC Business Press (S&D) Ltd., Sundry Sales Department, Quadrant House, The Quadrant, Sutton, Surrey, England SM2 5AS for £10.